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<p>(21) International Application Number: PCT/US95/01818</p> <p>(22) International Filing Date: 21 February 1995 (21.02.95)</p> <p>(30) Priority Data: 200,121 22 February 1994 (22.02.94) US</p> <p>(71) Applicant: SIGMA GAME, INC. [US/US]; One Aerojet Way, North Las Vegas, NV 89030 (US).</p> <p>(72) Inventors: PIECHOWIAK, Robert, J.; 416 Greenbrook Street, Las Vegas, NV 89110 (US). CRAWFORD, Curtis, J.; 632 Whispering Palms, Las Vegas, NV 89030 (US).</p> <p>(74) Agents: OGONOWSKY, Brian, D. et al.; Skjerven, Morrill, MacPherson, Franklin & Friel, Suite 700, 25 Metro Drive, San Jose, CA 95110 (US).</p>		<p>(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, UG, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>
<p>(54) Title: LINKED GAMING MACHINES HAVING A COMMON FEATURE CONTROLLER</p> <p>(57) Abstract</p> <p>The preferred embodiment of the present invention operates on a system (100) of interconnected gaming machines (101-108) and selectively provides one or more active features to all of the gaming machines (101-108) linked to the system (100). The enablement of the feature may be based on the combined results from previous plays on the individual gaming machines (101-108). The feature may be a bonus award for a specific displayed combination, an increased possibility for a winning combination, or any other feature which alters the normal operation of the gaming machines (101-108). The first machine (101-108) to generate a winning game result to which the feature applies will be given an award based upon the feature. The feature is then disabled and the system returns to normal play mode until the feature is again enabled. Various other features are described.</p>		
<pre> graph TD Start[Start] --> FeatureDisabled[Feature Disabled] FeatureDisabled --> Poll[Pol each machine connected to Feature Controller] Poll --> FeatureEnabled{Has Feature been enabled?} FeatureEnabled -- NO --> Continue[Continue normal operation of gaming machines] FeatureEnabled -- YES --> Award{Has Feature award criteria been met by polled machine?} Award -- YES --> AwardWin[Award win based on enabled Feature to polled machine] AwardWin --> FeatureEnabled AwardWin --> CriteriaEnabling{Has criteria for enabling Feature been met by polled machine?} CriteriaEnabling -- YES --> Enable[Enable Feature] Enable --> Display[Display Feature] CriteriaEnabling -- NO --> Continue </pre>		

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LINKED GAMING MACHINES HAVING
A COMMON FEATURE CONTROLLER

5

FIELD OF THE INVENTION

The present invention relates to electronic gaming devices. More particularly, the present invention 10 relates to controlling features available to linked electronic gaming machines.

BACKGROUND OF THE INVENTION

Modern gaming machines are typically 15 electronically controlled, as opposed to mechanically controlled. For example, U.S. Patent No. 4,095,795 to Saxton et al., incorporated herein by reference, discloses a slot machine having a computer which randomly generates a series of numbers corresponding to 20 stopping positions of each reel in the machine. After causing the reels to rotate for a period of time, the machine then stops the reels at their previously determined stopping positions.

This general type of computer controlled gaming 25 machine allows similar gaming machines to be electronically linked together to share a common jackpot. This is because the final game results and the jackpot award can be electronically communicated between a central jackpot controller and the various 30 linked gaming machines. Progressive jackpot gaming systems, comprised of one or more interconnected gaming machines which award a progressive jackpot award, are well known. By allowing players to win a large progressive jackpot award in addition to the customary 35 payout for winning combinations, the players enjoy a heightened interest and enthusiasm in the gaming machines. This heightened enthusiasm translates into

higher revenue for gaming machine proprietors. U.S. Patent No. 4,837,728 to Barrie et al., incorporated herein by reference, describes one such progressive gaming system comprised of linked slot machines. The 5 circuitry and software used to fabricate and operate these conventional linked gaming machines are well known to those skilled in the art.

SUMMARY OF THE INVENTION

10 The preferred embodiment of the present invention operates on a system of interconnected gaming machines and selectively provides one or more active features to all of the gaming machines linked to the system. The enablement of the feature may be based on the combined 15 results from previous plays on the individual gaming machines, or the enablement of the feature may be based on some other criteria such as time. The feature may be a bonus award for a specific displayed combination, an increased possibility for a winning combination, or 20 any other feature which alters the normal operation of the gaming machines.

The first machine to generate a winning game result to which the feature applies will be given an award based upon the feature. The feature is then 25 disabled and the system returns to normal play mode until the feature is again enable. The feature may also be disabled after a period of time.

In another embodiment, only selected ones of the 30 gaming machines are temporarily provided with a certain feature, where the feature is enabled based on the occurrence of some event.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates one embodiment of a circuit 35 which may be used to implement the present invention.

Figure 2 is a flowchart which shows the basic

steps used in one embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 illustrates a linked gaming system 100 which incorporates the present invention. Other circuitry for implementing the invention may also be used. The system 100 includes linked gaming machines 101-108 (which may be conventional electronically operated slot machines), multiplexer/de-multiplexer circuit (MUX) 120, central processing unit (CPU) 122, random access memory (RAM) 124, read only memory (ROM) 126, and output display device 128. MUX 120 may be replaced with an address/data bus and suitable decoders within the gaming machines 101-108 so that the gaming machines 101-108 can be addressed using digital codes. The circuit within the dashed line will be referred to as a feature controller 110.

Linked gaming machines 101-108 transmit game information to and receive feature information from feature controller 110 through MUX 120 (or a suitable address/data bus) via bi-directional communication lines 111-118. Such game information may include digital codes representing a final displayed combination of symbols in a slot machine. Such digital codes are normally generated in conventional slot machines for addressing an award table stored in a memory in the slot machine. CPU 122 controls MUX 120 and receives/transmits data from/to the gaming machines 101-108 via communication lines 121.

CPU 122, RAM 124, and ROM 126 are connected together via communication lines 123 and control the operation of gaming system 100. RAM 124 is used to temporarily store data generated by CPU 122. CPU 122 is coupled to and controls output display 128 via lines 125. The operation of feature controller 110 is controlled by a program stored in ROM 126. The

circuitry used in feature controller 110 to carry out the programmed instructions would be known by those skilled in the art after reading this disclosure.

Figure 2 is a flow chart illustrating an operation 5 of a linked gaming system 100 in accordance with an embodiment of the present invention. Such an operation may be controlled by a program stored in ROM 126.

The system 100 is powered up in a start step 200. During normal operation of the gaming system 100, 10 feature controller 110 disables one or more of the particular features under the command of the feature controller 110 (step 202). Gaming machines 101-108 may operate independently of each other during this normal operation mode and award wins based upon a normal payout criteria stored in either ROM 126 of feature controller 110 or in a memory (i.e., an award table) contained within each of the linked gaming machines. Feature controller 110 periodically polls each of the gaming machines 101-108, using MUX 120 (or an 15 address/data bus) and using conventional polling techniques, for game results generated in each of the linked gaming machines (step 204). Polling may be performed by sequentially accessing the gaming machines 101-108 in the system and reading the current game 20 results. If the feature has not yet been enabled (step 206) by the feature controller 110, gaming machines 101-108 continue normal operation (step 208).

In step 210, feature controller 110 compares the game results of each gaming machine 101-108 polled to 25 feature enabling criteria stored in ROM 126 (or elsewhere) to determine whether one or more predetermined features should be enabled. The feature enabling criteria may consist of any of a variety of conditions. For example, in one embodiment, a 30 criterion for enabling the feature may be a specified number of occurrences of a predetermined combination of

indica displayed by the gaming machines 101-108. Thus, for example, the feature may be enabled for a system of linked slot machines when four like symbols have been displayed a total of four times by the linked slot
5 machines.

If the feature controller 110 determines in step 210 that the feature enabling criteria has not met met (e.g., the game results indicate that four-of-a-kind have not yet been generated four times by linked gaming
10 machines 101-108), the feature remains disabled and the linked gaming machines 101-108 are again polled (step 204). Steps 204, 206, 208, and 210 are repeated until the game results generated by one or more of linked
15 gaming machines 101-108 meet the feature enabling criteria.

If the feature enabling criteria has been met (step 210) by the game results, feature controller 110 enables the feature (step 212), and this enabled feature is now prominently displayed (step 213) by
20 output display 128 to attract new players and heighten excitement. At this point, the feature is made available to all linked gaming machines 101-108. The various players now play the gaming machines 101-108 having the enabled features. Feature controller 110
25 again polls each of linked gaming machines 101-108 (step 204) and, with the feature now enabled (step 206), determines whether the feature award criteria stored in ROM 126 has been met by any of the polled machines (step 214). Feature controller 110 then
30 awards a win, based upon the enabled feature, to the first linked gaming machine to generate a game result which matches the feature award criteria (step 216). In one embodiment, the feature operates to double the award normally associated with a certain game result
35 (e.g., four-of-a-kind).

Instead of the feature controller 110 determining

a win based on the polled game results and communicating the award amount to the gaming machine, feature controller 110 could modify the award table in each of the gaming machines 101-108, via communication lines 111-118, to reflect the enable feature. The gaming machine would then compare its game result to the award table and then provide a corresponding award. In this embodiment, feature controller 110 would still poll the various gaming machines to determine whether 10 the feature should be enabled or disabled in the various award tables.

After a match is found and a win awarded (step 216) in accordance with the feature, the feature is then disabled (step 202) and all linked gaming machines 15 101-108 return to normal operation. Gaming machines 101-108 will remain in normal operation until feature controller 110 again enables the feature (step 212).

If no game result of linked gaming machines 101-20 108 matches the feature award criteria, steps 204, 206, and 214 are repeated until one of linked gaming machines 101-108 is awarded a win based upon the feature. In another embodiment, the feature is automatically disabled after a period of time. This period of time may be displayed by display 128.

25 In accordance with the present invention, both the feature award criteria and the feature enabling criteria may embody various conditions in addition to those previously discussed. For instance, in some embodiments the feature enabling criteria stored in ROM 30 126 (or elsewhere) may be a predetermined lapse of time between periods during which the feature has been disabled; for example, feature controller 110 may enable the feature 10 minutes after the feature was last disabled.

35 To attract more non-player interest in the gaming machines, the feature enabling criteria may be a

predetermined lapse of time during which one or more of linked gaming machines 101-108 has not been played. And in yet another embodiment, the feature is enabled in a purely random manner.

5 Similarly, the feature award criteria stored in ROM 126 may take on many forms. For example, the feature award criterion may be the display by one of the linked gaming machines 101-108 of a certain combination of symbols (e.g., four-of-a-kind), in which
10 case the feature will award an enhanced amount (i.e., a bonus). The feature may even offer the gaming machine players a greater variety of winning possibilities, thereby increasing player interest in the linked gaming system 100. Hence, the feature award criteria may be a
15 special or randomly chosen combination of symbols which will incur an enhanced award being given to the player. In another embodiment, the feature may provide a more nonconventional award by the linked gaming device meeting the feature award criteria, such as free game credits or other prizes.
20

It is to be understood that the embodiments described above as applied to linked gaming machines which display symbols on drums or reels can also be applied to machines in which the indicia are displayed
25 on video screens, as well as to other video displayed games, including but not limited to poker gaming machines, blackjack gaming machines, and roulette gaming machines.

While particular embodiments of the present invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from this invention in its broader aspects and, therefore, the appended claims are to encompass within their scope all
30 such changes and modifications as fall within the true spirit and scope of this invention.
35

CLAIMS

What is claimed is:

1. A method of operating a system of linked
gaming machines in which an award is given based on an
5 award criteria, said method comprising the steps of:

generating one or more first game results in
one or more of said linked gaming machines, a
feature not being available to one or more of said
linked gaming machines,

10 said feature, when available to said linked
gaming machines, operating to alter said award
payable by said linked gaming machines;

determining whether a first criterion has
been met for making said feature available to one
15 or more of said linked gaming machines;

making said feature available to said one or
more of said linked gaming machines after it has
been determined that said first criterion has been
met;

20 generating one or more second game results in
one or more of said linked gaming machines;

comparing said one or more second game
results to a predetermined award criterion to
which said feature applies;

25 giving an award by one or more of said linked
gaming machines based upon whether said one or
more second game results matches said
predetermined award criterion; and

30 making said feature not available to said one
or more of said linked gaming machines after it
has been determined that a second criterion has
been met.

35 2. The method of Claim 1 further comprising the
step of displaying said feature on one or more display
devices when said feature is available to one or more

of said linked gaming machines.

3. The method of Claim 1 wherein said feature is made available to one or more of said linked gaming machines when a predetermined number of said first game results match said first criterion.

4. The method of Claim 1 wherein said predetermined award criterion is a specified combination of symbols displayed by one or more of said linked gaming machines.

5. The method of Claim 1 wherein said feature is made available to one or more of said linked gaming machines after a predetermined number of occurrences of a specified combination of symbols displayed by said linked gaming machines.

6. The method of Claim 1 wherein said feature is made available to one or more of said linked gaming machines at a predetermined time interval.

7. The method of Claim 1 wherein said feature is made available to one or more of said linked gaming machines at a random time interval.

8. The method of Claim 1 wherein said feature is made available to one or more of said linked gaming machines when one or more of said linked gaming machines has not generated said first game results for a predetermined period of time.

9. The method of Claim 1 wherein said feature multiplies an award normally given for a certain game result by a predetermined factor, said predetermined factor being a number greater than 1.

10. The method of Claim 1 wherein said feature provides additional winning combinations for one or more of said linked gaming machines.

5 11. The method of Claim 1 wherein, after said feature is made available to one or more of said linked gaming machines, said feature is made not available after one of said linked gaming machines has generated a game result which meets said predetermined award
10 criterion to which said feature applies.

12. The method of Claim 1 wherein, after said feature is made available to one or more of said linked gaming machines, said feature is made not available
15 after a period of time.

13. A system of linked gaming machines for giving an award based on award criteria, said system comprising:

20 a feature controller coupled to each of said linked gaming machines, said feature controller comprising a computer for determining when a feature is to be made available and not available to one or more of said linked gaming machines,
25 wherein said feature operates to alter an award payable to one or more of said linked gaming machines; and

30 a display device coupled to said feature controller for displaying said feature when said feature is made available.

14. The system of Claim 13 wherein said feature controller makes said feature available to one or more of said linked gaming machines when a predetermined number of first game results match a first criterion.
35

15. The system of Claim 13 wherein said feature controller makes said feature available to one or more of said linked gaming machines at a predetermined time interval.

5

16. The system of Claim 13 wherein said feature controller makes said feature available to one or more of said linked gaming machines at a random time interval.

10

17. The system of Claim 13 wherein said feature controller temporarily makes said feature available for a first predetermined period of time.

15

18. The system of Claim 13 wherein, after said feature is made available to one or more of said linked gaming machines, said feature is made not available after one of said linked gaming machines has generated a game result which meets a predetermined award criterion to which said feature applies.

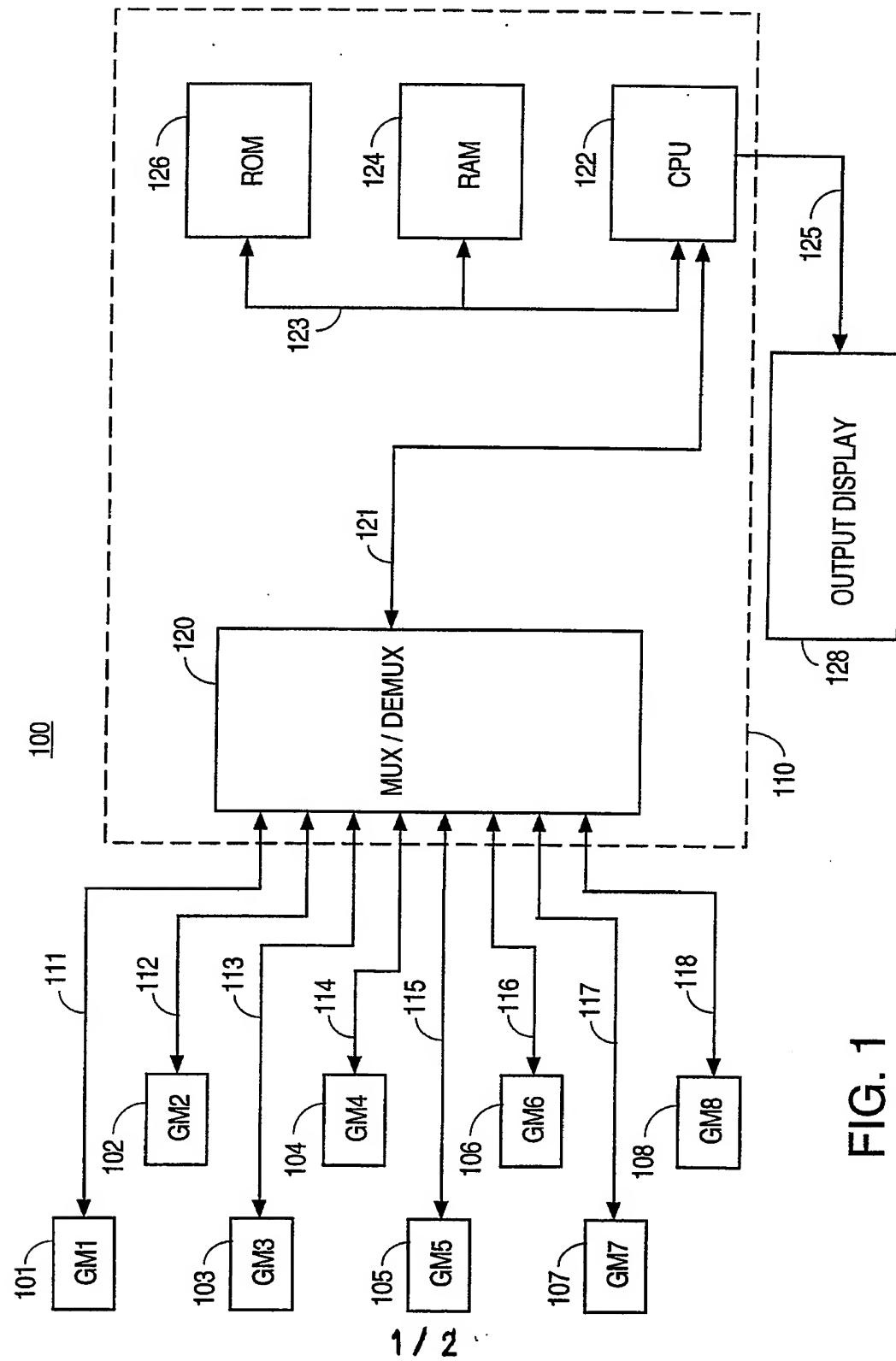
20

19. The system of Claim 13 wherein said feature provides additional winning combinations for one or more of said linked gaming machines.

25

20. The system of Claim 13 wherein said feature multiplies an award normally given for a certain game result by a predetermined factor, said predetermined factor being a number greater than 1.

30

**FIG. 1**

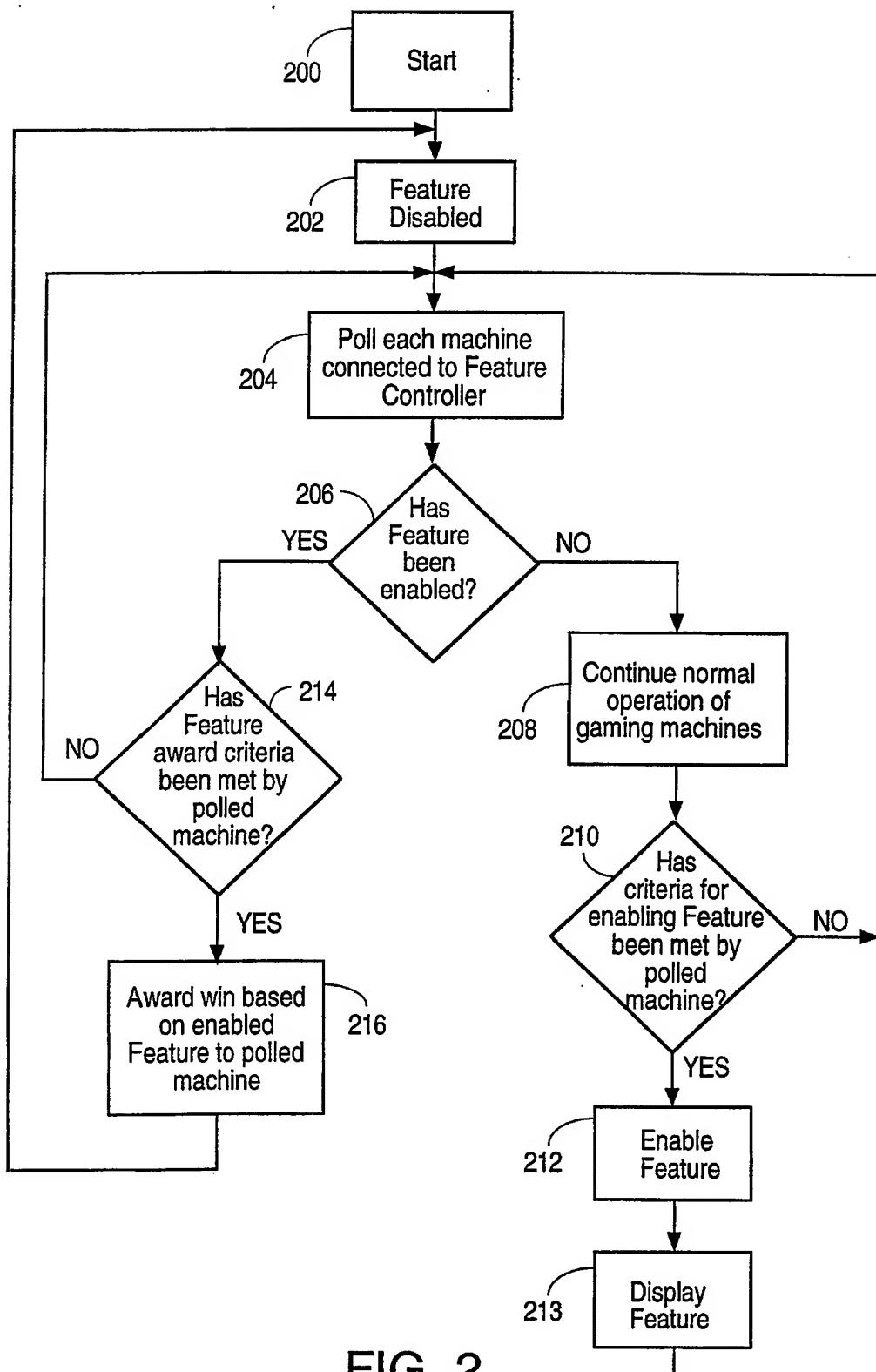


FIG. 2
2 / 2

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 95/01818

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G07F17/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP,A,0 342 797 (KABUSHIKI KAIsha UNIVERSAL) 23 November 1989 see abstract ---	1-5,9, 11-14, 18,20
Y	EP,A,0 521 599 (TIBERIO) 7 January 1993 see column 5, last paragraph - column 6, line 15 see column 8, line 13 - line 20 see column 8, line 51 - column 9, line 20; figures 1,3,5 ---	1-5,9, 11-14, 18,20
A	EP,A,0 015 081 (BARCREST) 3 September 1980 see page 13, line 11 - line 17 ---	6-8,12, 15-17 -/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 95/01818

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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1

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Information on patent family members

International Application No

PCT/US 95/01818

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